USSR

UDC 613.644:612.017.1+612.017.1.014.451

KHAYMOVICH, M. L., Leningrad Scientific Research Institute of the Hygiene of Labor and of Occupational Diseases, Leningrad

"The Effect of Noise on the General Immunological Reactivity of the Organism"

Moscow, Gigiyena i Sanitariya, No 2, Feb 73, pp 96-98

Abstract: The immunological reactivity of workers in shoe production exposed to noise resulting from the stamping out of parts for shoe bottoms was studied. Locksmiths who were not exposed to this noise were used as controls. The immunological reactivity was determined by the method of V. I. Ioffe, et al (Zh. Mikrobiol., No 12, p 3, 1943). The serum of rabbits immunized with the tissues of human organs was introduced into the skin of the forearm. Into the skin of the opposite forearm, serum of rabbits that had not been immunized was introduced. The immunological reactivity was estimated on the basis of the degree of reddening of the skin that was produced in the test. The immunological reactivity, as indicated by the relative frequency of negative, positive, and highly positive reactions, was lower for the shoe workers than for controls. The reactivity decreased with an increasing length of the time of employment of the shoe workers. This decrease in reactivity was accompanied by an increased susceptibility to diseases as compared with that of workers in other types of production at Leningrad.

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UNCLASSIFIED PROCESSING DATE--17JUL70

TITLE--X RAY INVESTIGATION OF MOLYBDENUM AND NICKEL IRRADIATED WITH HELIUM ION -U-

AUTHOR--BIKOV, V.M., ZOORVTSEVA, G.G., TROYAN, V.A., KHAYMOVICH, V.S.

COUNTRY OF INFO--USSR

SOURCE--UKRAINSK'KIL FIZICHNII ZHURNAL, VOL 15, JAN. 1970, P 135-139

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--X RAY DIFFRACTION ANALYSIS, MOLYBDENUM, NICKEL, ION BOMBARDMENT, CRYSTAL LATTICE DEFORMATION, ALLOY ANNEALING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1978/2005 STEP NO--UR/0135/70/015/000/0135/0138

CIRC ACCESSION NO--AP0046689

UNCLASSIFIED

Acc. Nr: AP0046689 Abstracting Service: 5/70 INTERNAT. AEROSPACE ABST. Ref. Code: UR0185

A70-23197 # X-ray investigation of molybdenum and nickel irradiated with helium ions (Rentgenografichne doslidzhennia molibdenu ta nikeliu, oprominenikh ionami geliiu). V. M. Bikov, G. G. Zdorovtseva, V. A. Troian, and V. S. Khaimovich (Maskovskii Inzhenerno-Fizicheskii Institut, Obninsk, USSR). *Ukrains'kii Fizichnii Zhurnal*, vol. 15, Jan. 1970, p. 135-138. 5 refs. In Ukrainian.

Investigation of the changes in polycrystalline Mo and Ni specimens caused by He ion bombardment with an energy of 60 keV (irradiation dose of 10 to the 15th to 10 to the 20th particles). The D-pattern of the irradiated specimens proved to be essentially different from that for reference specimens, some lines being split. These changes depend upon the integral irradiation dose. It appears to result from the tetragonal distortion of the lattice form. The changes decrease in annealing and disappear completely at a temperature of about 400 C. (Author)

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REEL/FRAME
19782005

1/2 029 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--EFFECT OF HEAT TREATMENT ON THE STRENGTH OF MECHANICALLY TREATED CORUNDUM CRYSTALS -U-

AUTHOR-(05)-AKULENOK, YE.M., BAGDASAROV, KH.S., GOVORKOV, V.G., KLASSENNEKLYUDOVA, M.V., KHAIMOVMALKOV, V.YA.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 158-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MECHANICAL STRENGTH, THERMAL EFFECT, CORUNDUM, ABRASIVE, ALUMINUM OXIDE, CHROMIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0614 STEP NO--UR/0363/70/006/001/0158/0159

CIRC ACCESSION NO--AP0105597

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105597

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DURING RECENT YEARS THE AREA OF PRACTICAL APPLICATION OF CORUNDUM CRYSTALS HAS BEEN BROADENED CONSIDERABLY. THE EFFECT WAS STUDIED OF HEAT TREATMENT ON STRENGTH CHARACTERISTICS OF ARTICLES MADE FROM CORUNDUM CRYSTALS AND TREATED BY ABRASIVE MATERIAL. THE CIRCULAR FLEXURE METHOD WAS USED. THE STRENGTH DETN. WAS DONE FROM THE FRACTURE STRESS VALUE OF THE SAMPLES, AT ROOM TEMP. AND AT A DEFORMATION RATE OF 0.15MM-MIN. THE SAMPLES TESTED WERE GROWN IN FORM OF BOULES BY THE VERNEUIL METHOD. THE NORMAL TO THE SURFACE OF THE PLATES FORMED AN ANGLE OF 16DEGREES WITH THE MEAN VALUE OF 1120 DIRECTION. THE CR IMPURITY CONTENT IN THE AL SUB2 O SUB3 BATCH WAS 0.04 AT. PERCENT. IN ORDER TO REMOVE RESIDUAL STRESSES, THE SAMPLES WERE ANNEALED. THE INCREASE (2.5-3 TIMES) IN THE STRENGTH OF THE SAMPLES ACHIEVED AS A RESULT OF HEAT TREATMENT AT 1200DEGREES FOR 1 HR REMAINS UNCHANGED DURING THE SUBSEQUENT INCREASE IN THE ANNEALING TEMP. TESTS FURTHER SHOWED THAT INCREASING THE ANNEALING TIME 1-48 HR AT 1200-1700DEGREES DID NOT RESULT IN FURTHER INCREASE IN THE STRENGTH OF THE SAMPLES. THE RESULTS OBTAINED ARE INTERPRETED AS ELIMINATION OF THE EFFECT OF THE DEFECTS FORMING AT THE SURFACE OF THE SAMPLES DURING THEIR MECH. TREATMENT. THE RELATIVE HIGH SCATTER IN THE STRENGTH VALUES CAN BE EXPLAINED BOTH BY THE PRESENCE OF VARIOUS BULK DEFECTS IN THE SAMPLES AND BY THE DIFFERENCE IN THE DEGREE OF POLISHING OF THEIR SURFACES.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201310012-9"

KHAYDAROV K.

tals are outlined. It is shown that a decrease of at least one unit of the suggested photon level of the multi-quantum excitation process in photoconductivity of activated alkali halide crystals is associated with the thermal ionization of excited states of impurity centers. Graphical and photographic data of experimental results are included.

Bedilov, M. R., K. Khaydarov, and Kh. Babadzhanova.
Nature of radiation defects formed on the surface of solids by ruby laser radiation. IAN UzbSSR, Ser. fiz.-mat. nauk, no. 2, 1972, 66-68.

Results are described of an experimental investigation of damage processes on the surface of solids from ruby laser radiation in a free-running regime. Radiation energy was 1-3 joules and maximum power density was ~10^7 watt/cm^2; the beam was focused using a f = 50 mm lens. Targets were W, Mo, Ni, Zn, and Si, purified by laser radiation and placed in a 10^{-6} torr vacuum. Radiation processes were studied using microscopic and oscillographic methods, which provided data on integral and time characteristics of target surface defects during the laser pulse period. Integral defects formed by 800 μsec exposure were studied by microscope. In the 0.6-2 joules energy range, growth of surface radiation defects was strongly dependent on the nature of target and laser energy. At 0.6-1.0 joules, the target structure was predominantly band-like; but melting zones and craters did not appear. Individual 150-200 μ microcraters were formed however on the surface due to the intensive laser pulse peaks. With an increase of energy to 2 joules, the structure band disappeared and macrocrater and melting zones were observed on the target. The macrocraters were almost identical, nearly circular and their size was a function of target type, varying between 800 and 1050 μ. For W, Mo, Ni, and Zn targets, macrocraters attained 800, 1050, 950, and 1200μ respectively. at a laser energy of 2 joules. Iou current variations were recorded by an

1/2 013 UNCLASSIFIED PROCESSING DATE--040EC70
TITLE--MECHANISM OF THE THERMAL DECOMPOSITION OF OXALATES -U-

AUTHOR-(04)-BOLDYREV, V.V., NEVYANTSEV, I.S., MIKHAYLOV, YU.I., KHAIRETDINOV, E.F.
COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(2), 367-73

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL DECOMPOSITION, OXALATE, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/D05 STEP NO--UR/0195/70/011/002/0367/0373

CIRC ACCESSION NO--AP0140290

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140290

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISCUSSION OF THE PUBLISHED HYPOTHETICAL MECHANISMS OF THERMAL DECOMPN. OF OXALATES LEADS TO THE CONCLUSION THAT CLEAVAGE OF C-C BOND OF C SUB2 O SUB4 PRIME2NEGATIVE IS THE PRIMARY STEP IN THE DECOMPN. FACILITY: INST. KHIM. KINET. GORENIYA, NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

BAKAYEV, A. A., PETUKHOV, V. S., KHAYRNASOV, M.

"Automated System for Operational Calculations (ASOR) Involved in the Processing of Export Cargo in a Port"

Upravlyayushchiye Sistemy i Mashiny [Control Systems and Machines], 1972, No 1, pp 50-54 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V677, by the authors).

Translation: The basic principles of formation and processing of information for the main files of an automated system are presented, using the data from primary messages concerning movement of export cargoes in a port.

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USSR

UDC:511

OGAY, S. V., KHAYROV, A. A.

"One Method of Construction of Diophantine Equations Having a Finite Number of Rational Points"

Tr. Kirg. Un-ta. Ser. Matem. n. [Works of Kirgiz University. Mathematics Sciences Series], No. 7, 1970, pp. 202-205 (Translated from Referativnyy Zhurnal Matematika, No. 12, 1970, Abstract No. 12A101 by O. Fomenko)

Translation: An approach is presented which can be used to construct curves with a finite number of rational points. As an example, a hyperelliptical curve with this property is constructed.

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USSR

UDC: 681.332.65

ZLATOUSTOV, S. V., KHAIROV, R. M., Kazan' Aviation Institute

"A Method of Producing a Pulse Train"

USSR Author's Certificate No 285046, filed 2 Dec 68, published 30 Dec 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct 71, Abstract No 10B222 P)

Translation: In conventional methods of obtaining sequences of pulses with random durations having a controllable distribution function, use is ordinarily made of the controllability of the distribution of a random number sequence. However, it is difficult to orient the use of probability-controllable random number sequences to the predetermined probability of the selected duration of the random-duration pulse sequence because of the strong conditional dependence of the probability of appearance of a specific duration or the finiteness of the sampling time. In the method of obtaining a random-duration pulse train as introduced by this patent, the sum of sawtooth and noise voltages is compared with the sum of DC and noise voltages, after which the absolute value of the random error for the time duration of

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ZLATOUSTOV, S. V., KHAIROV, R. M., Soviet Patent No 285046

the comparison is isolated. The selection, control, and restoration of the probability distribution function for the isolated random-duration pulse sequence is accomplished by varying the rise time of the sawtooth voltage. Two illustrations.

USSR

UDC 537.226+537.311.33/:/537+535

AZIMOV, S. A., LUTFULLAYEV, the late A., MIRZABAYEV, M., and KHAYRULLAYEV, SH., Physicotechnical Institute imeni S. V. Starodubtsev, Academy of Sciences Uzbek SSR

"Effect of Single Strain on Resistivity of Hexagonal Silicon Carbide"

Tashkent, Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Fiziko-Matematicheskikh Nauk, No 3, 1973, pp 52-54

Abstract: For purposes of studying the effect of mechanical compression stress (along the $[11\bar{2}0]$, $[10\bar{1}0]$, and $[0001]$ axes) on the electric resistance of commercial α-SiC (6H) single crystals of the n and p types, the authors studied the effect of single elastic strain on the resistivity of hexagonal silicon carbide at nitrogen, room, and higher temperatures. The results of longitudinal motional resistance measurements show that the variation pendence of motional resistance with temperatures in the region where acoustic phonon and impurity ion scattering prevails is close to the dependence of $\Delta\rho(\chi)/\rho(0)$ on T^{-1} and is similar to the dependence obtained for Ge, Si. This indicates that the motional resistance of hexagonal silicon carbide

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AZIMOV, S. A., et al., Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Fiziko-Matematicheskikh Nauk, No 3, 1973, pp 52-54

samples in the impurity conduction region is due to the effect of charge carrier redistribution between conduction band valleys.

Preliminary studies established that in samples with $\rho > 1$ ohm·cm the absolute motional resistance coefficient increases with an increase in the temperature and declines appreciably with a decrease in the temperature to 77° K. This is apparently due to the change in the activation energy of the impurities and, hence, in the free carrier concentration as a function of χ and T. The shape of the dependence of $\Delta\rho/\rho$ on χ and T for samples with p-type conduction evidently indicates the degeneracy of the valence band of silicon carbide at the extreme point.

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USSR

UDC 591.16:599.324

KHAYRULLIN, N. N., Ufa Secondary School No 77

"Reproduction and Seasonal Variability of Fecundity in Two Populations of Norway Rats"

Moscow, Ekologiya, No 4, 1971, pp 99-100

Abstract: Test data is cited for the fecundity of rat populations living in a stable, subfreezing climate (-12°C), as compared with those subject to a less stable, cyclically variable climate. Population differences were observed in all the most significant indices: fecundity, seasonal variations in fecundity, rapidity of sexual maturation and percent of reabsorbed embryos. The results show heightened fecundity to be one of the adaptations of the species to subfreezing living conditions. The rat population living in a stable, cold environment showed both greater fertility and earlier fecundity, thus confirming the observations of other investigators that earlier sexual maturation occurs in rat populations existing in a low temperature environment.

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KHAYRULLIN, N. N., Ekologiya, No 4, 1971, pp 99-100

As a consequence of the adaptation to a constant, subfreezing environment, rats were not subject to the usual seasonal variations in fertility. Furthermore, the rat population existing in a less stable, cyclical environment showed a higher rate for embryo reabsorption during difficult pregnancies: 5.4% as opposed to 2.1% for the rats in a more stable environment.

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USSR UDC 547.26'118

NURTDINOV, S. KH., KHAYRULLIN, R. S., TSIVUNIN, V. S., ZYKOVA, T. V., KAMAY, G. KH.

"Interaction of Diarylchlorophosphites with Saturated Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 123-125

Abstract: It was demonstrated earlier [S. Kh. Nurtidinov, et al., USSR Author's Certificate No 249386, Byull. Izobr., No 25, 1969; ZhOKh, No 40, 36, 1970; ZhOKh, No 40, 2377, 1970] that halogenophosphines react comparatively smoothly with saturated ketones with the formation of cyclic oxaphospholenes. As a continuation of this research, a study was made of the reaction of diphenylchlorophosphite with acetone, methylethyl, methylpropyl, methylbutylketone and acetophenone. The indicated components react with heating to 100-160° for 10-20 hours with the formation of the vinyl derivatives of pentavalent phosphorus:

$$(PhO)_2PCl + RCCH_2R' \xrightarrow[-HCl]{} (PhO)_2P(O)-C(R)=CHR'$$

$$(C_6H_5O)_2P(O)-C(R)=CHR'$$

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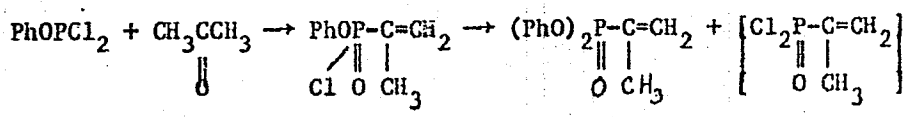
NURTDINOV, S. KH., et al., Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 123-125

The primary aryldichlorophosphites react with saturated ketones as follows:



Infrared spectra are presented confirming the structure of the diphenyl esters of butene-g-ylphosphonic-1 acid and x-phenylvinylphosphonic acid. The paramagnetic resonance spectrum is presented for the diphenyl ester of propenylphosphonous-2 acid.

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USSR

UDC 547.241.284

NURTDINOV, S. KH., KHAYRULLIN, R. S., ZYKOVA, T. V., TSIVUNIN, V. S., KAMAY, G. KH. (deceased), Kazan' Institute of Chemical Technology imeni S. M. Kirov

"Reaction of Diethylchlorophosphine With Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971, pp 2158-2162

Abstract: Continuing their studies of chlorophosphine reactions with saturated ketones, the authors synthesized a series of tertiary phosphine oxides by heating (at 100-110°) chlorodiethylphosphine with aliphatic ketones or acetophenone. The chemical structure of the products was confirmed by their IR and NMR spectra and conversion to some other compounds. α-Chloroisopropyldiethylphosphine oxide when treated with alcoholic alkali or acetic anhydride yielded diethylisopropenylphosphine oxide or α-acetoxyisopropyldiethylphosphine oxide. Diethyl-α-phenylvinylphosphine oxide with alcoholic alkali gave sodium dialkylphosphinate. The elemental analysis data and physical constants of the synthesized compounds are given.

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USSR UDC 547.241

NURTDINOV, S. KH., KHAYRULLIN, R. S., BURMAKINA, T. V., ZYKOVA, T. V., SALAKHUTDINOV, R. A., TSIVUNIN, V. S., and KAMAY, G. KH. (DECEASED), Kazan' Institute of Chemical Technology

"Reaction of Aryldichlorophosphines with Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 8, Aug 71, pp 1685-1688

Abstract: Continuing their study of the condensation of primary chlorophosphines with ketones, the authors investigated the reaction of phenyl- and tolyldichlorophosphine with saturated ketones. It was found that these components react on heating for 10-20 hours at 90-130° to give cyclic oxaphospholenes, which react with alcohols to give corresponding esters of aryl-β-ketophosphinic acids. IR, NMR, and PMR spectroscopy methods were used to study the mechanism of the interaction of aryldichlorophosphines with ketones. The results confirm that at one of the stages of the reaction β-ketophosphinic acid chlorides are formed.

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USSR UDC: 547.241

NURTDINOV, S. Kh., KHAYRULLIN, R. S., TSIVUNIN, V. S., ZYKOVA, T. V., NURTDINOV, G. Kh., KAMAY, G. Kh. (deceased), Kazan' Institute of Chemical Technology imeni S. M. Kirov

"On the Interaction of Chlorides of Trivalent Phosphorus With Saturated Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 40 (102), No 11, Nov 70, pp 2377-2382

Abstract: The authors studied reactions of phosphorus trichloride, ethyldichlorophosphine and phenyldichlorophosphine with acetone, methylethylketone, acetophenone and methylbutylketone. It was found that all of these components react smoothly with heating to 90-170°C for 16-20 hours. The reaction products in most instances were purified by vacuum distillation, resulting in colorless liquids with a slight characteristic odor. In the case of acetophenone, the products were isolated by recrystallization from alcohols. Infrared and paramagnetic resonance spectroscopic studies were used to determine the reaction mechanism for chlorides of trivalent phosphorus with ketones. Some of the properties of the resultant cyclic oxaphospholenes are tabulated.

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USSR UDC: 547.241

NURTDINOV, S. Kh., TSIVUNIN, V. S., KHAYRULLIN, R. S., KASHTANOVA, V. G., and KAMAY, G. Kh., Kazan' Institute of Chemical Technology

"Reaction of Ethyl- and Phenyldichlorophosphine with Acetone"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 1, Jan 70, pp 36-40

Abstract: Liquid heterocyclic compounds, 2-keto-2-ethyl-(or phenyl-)-3,3,5--trimethyl-1-oxa-2,4-phospholenes (I), were obtained in 67-70% yields by heating for 10-20 hours in a sealed tube mixtures of ethyl- or phenyldichlorophosphine with acetone at 75-80° or 100°, respectively. Physical constants of I are given. The structure of I was determined from IR and NMR spectra. Heating I with methanol at 70-150° in a sealed tube gave ethyl- or phenyl 1, 1-dimethyl-3-ketobutylphosphinites (II) in 49-73% yields. All II compounds but one are liquids. Similarly heating I at 110° with water slightly acidified with hydrochloric acid gave 52-54% yields of ethyl- or phenyl-1,1--dimethyl-3-ketobutylphosphinic acids, crystalline solids with melting point 112-13° and 121°, respectively. The structures of the phenylketobutylphosphinic acid, I and II were determined from IR spectra.

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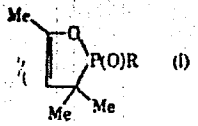
Acc. Nr: AP0053349 Abstracting Service: CHEMICAL ABST. 5/30 Ref. Code: UR0079

111569y Reaction of ethyl- and phenyldichlorophosphine with acetone. Nurtdinov, S. Kh.; Tsivunin, V. S.; Khairullin, R. S.; Kashtanova, V. G.; Kamai, G. (Kazan. Khim.-Tekhnol. Inst., Kazan, USSR). *Zh. Obshch. Khim.* 1970, 40(1), 36–40



(I)

(Russ). Heating in a sealed tube 22 g $EtPCl_2$ and 19.2 g Me_2CO 10 hr at 75–80° gave 67% I (R = Et) $b_{0.1}$ 80–2°, d^{20} 1.0630, n_D^{20} 1.4768. $PhPCl_2$ similarly gave in 20 hr at 100° 70% I (R = Ph), $b_{0.09}$ 136°, 1.0310, 1.5415. Heating I with R^1OH in a sealed tube at 100–50° several hr gave $RP(OR^1)CMe_2CH_2Ac$ (R and R^1 shown): Et, Me, 73%, b_3 112–13°, 1.0670, 1.4645; Ph, Me, 50%, $b_{0.3}$ 149–52°, 1.1260, 1.5255; Et, Et, 63%, b_4 128–30°, 1.0400, 1.4610; Et, Pr, 57%, b_3 131–3°, 1.0300, 1.4640; Et, iso-Pr, 52%, m. 82–4°; Et, Bu, 49%, $b_{0.09}$ 96–8°, 1.0250, 1.4631; Et, C_5H_{11}, 51%, $b_{0.02}$ 122–4°, 0.9837, 1.4502; Ph, Et, 67%, $b_{0.3}$ 154–6°, 1.1250, 1.5235 (2,4-dinitrophenylhydrazone

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m. 213°); Ph, Pr, 70.8%, $b_{0.2}$ 141–3°, 1.0870, 1.5137 (2,4-dinitrophenylhydrazone m. 203°); Ph, iso-Pr, 56.9%, $b_{0.1}$ 131–3°, 1.0968, 1.5150; Ph, Bu, 67.5%, $b_{0.15}$ 146–8°, 1.0697, 1.5110; Ph, iso-Bu, 52.3%, $b_{0.25}$ 158–60°, 1.0741, 1.5115; Ph, C_5H_{11}, 69%, $b_{0.4}$ 166–70°, 1.0613, 1.5068; Ph, iso-C_5H_{11}, 71%, $b_{0.05}$ 138–40°, 1.0630, 1.5075. Heating I with H_2O sligltly acidified with HCl 8 hr at 110° gave 52–4% $AcCH_2CMe_2P(O)(OH)R$: Et, m. 112–13°; Ph, m. 121° (aniline salt, m. 124°).

G. M. Kosolapoff

19830372

USSR

UDC 542.91:547.1'118

KHAYRULLIN, V. K., DMITRIYEVA, G. V., ALEKSANDROVA, I. A., and VASYANINA, M. A., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Kazan' Branch of the Academy of Sciences USSR

"A New Synthetic Method for Bifunctional Oxides of Tertiary Phosphines"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 12, Dec 73, pp 2744-2749

Abstract: Reacting mixed chlorophosphines containing one functional group with α,β-unsaturated acids or their amides leads to the formation of tertiary bifunctional phosphine oxides with functional groups C≡N, COOH, COCl, COOR, etc. Hydrolysis of the ethyl-bis-(β-cyanoethyl)phosphine oxide yields ethyl-bis-(β-carboxyethyl)phosphine oxide.

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USSR UDC 547.241 + 547.73

KHAYRULLIN, V. K., and ALIYEV, R. Z., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reaction of Ethyl-2-thienylchlorophosphine With α, β-Unsaturated Acids and Their Amides"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, pp 2165-2169

Abstract: Ethyl-2-thienylchlorophosphine reacted with acrylic, metacrylic and cinnamic acids followed by decomposition of the product formed with methanol gave ethyl-2-thienyl(β-carbomethoxyalkyl)phosphine oxides. In addition ethyl-2-thienyl(β-carboxyalkyl)phosphine oxides have been identified as byproducts. Ethyl-2-thienylchlorophosphine (I) reacts exothermally with acrylic and metacrylic acid amides yielding ethyl-2-thienyl(β-cyanoethyl)phosphine oxide (II) and ethyl-2-thienyl(β-cyanopropyl)phosphine oxide. When (I) was reacted with acrylic acid diethyl amide in presence of acetic acid, the main product was ethyl-2-thienyl(β-diethylcarbamoylethyl)phosphine oxide. (II) heated with phosphorus pentasulfide gave ethyl-2-thienyl-(β-cyanoethyl)phosphine sulfide. Diethylamide of ethyl-2-thienylphosphinous acid heated with benzaldehyde gives ethyl-2-thienyl(diethylaminobenzyl)phosphine oxide.

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USSR

UDC 542.91:547.1'118:547.38

ALIYEV, R. Z., and KHAYRULLIN, V. K., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Kazan' Branch of the Academy of Sciences USSR

"Reaction of Thienyldichlorophosphine With α,β-Unsaturated Ketones"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 12, Dec 73, pp 2785-2786

Asstract: Methylisopropenyl ketone and methylvinyl ketone react with thienyldichlorophosphine in presence of acetic anhydride to form 4,5-dimethyl-2-thienyl-2-oxo-1,2-oxaphospholene-4 (I) and 5-methyl-2-thienyl-2-oxo-1,2-oxaphospholene-4 (II) respectively. Reaction of (I) and (II) with alcohols leads to the formation of thienyl-β-acetylalkylphosphinic acid esters.

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USSR UDC 547.241 + 547.73

KHAYRULLIN, V. K., ALIYEV, R. Z., Institute of the Organic and Physical Chemistry imeni A. Ye. Arbusov, Academy of Sciences USSR

"Alkylation of 2-Thienyldichlorophosphine"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1921-1925

Abstract: The alkylation of 2-thienyldichlorophosphine with tetraethyl lead was studied and a method was proposed for purification of ethyl-2-thienyl-chlorophosphine (I). Reactions of (I) with diethylamine and alcohols were investigated as well as of the ethyl-2-thienylphosphinous acid esters with methyl iodide, chloral, and p-quinone. The structures of these reaction products have been confirmed by IR spectral analyses.

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USSR UDC 547.341.26.'118.07

VASYANINA, M. A., KHAYRULLIN, V. K., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov

"A Method of Making Substituted 5-Thio-1,2-Oxaphosphpholenes-3"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 22, Aug 72, Author's Certificate No 345163, Div C, filed 5 Nov 70, published 14 Jul 72, p 96

Translation: This author's Certificate introduces: 1. A method of making substituted 5-thio-1,2-oxaphospholenes-3. As a distinguishing feature of the patent, a substituted 2-thio-5-oxo-1,2-thiaphospholene-3 is reduced by an agent such as triphenylphosphine with the application of heat, followed by isolation of the goal product by conventional methods. 2. A modification of this procedure distinguished by the fact that heating is done to 180°C.

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USSR

UDC 547.241.547.391.1

(2)

GASIZOV, T. KH., PASHINKIN, A. P., DMITRIYEVA, G. V., TUZOVA, L. L., KHAYRULLIN, V. K., and PUDOVIK, A. N., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzova, Academy of Sciences USSR

"Reactions of the Acyl Culonides of Trivalent-Phosphorus Acids with α, β-Unsaturated Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 8, 1972, pp 1730-1733

Abstract: A detailed study was made of the mechanism of the title reactions with special reference to behavior of the P atom of the chlorophosphines. The simultaneous reaction of the acrylic acid with equimolar mixtures of phenyl- and ethyldichlorophosphine (PDP and EDP, respectively) and the subsequent reaction with ethanol and triethylamine to form the ethyl ester of ethyl- β-carboethoxyethylphosphonic acid (45% yield) proceeds as follows:

$$(C_2H_5PCl_2 + C_6H_5PCl_2) + CH_2{=}CH{-}COOH \longrightarrow$$

$$\longrightarrow C_2H_5P(O)(Cl)CH_2CH_2COCl + C_6H_5PCl_2$$

$$C_2H_5P(O)(Cl)CH_2CH_2COCl \xrightarrow{2(C_2H_5OH + (C_2H_5)_3N)} C_2H_5P(O)(OC_2H_5)CH_2CH_2COOC_2H_5 + 2(C_2H_5)_3N \cdot HCl$$

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(2)

USSR

GAZIZOV, T. KH., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 8, 1972, pp 1730-1733

An analagous reaction occurs between PDP and ethyldichlorophosphite. On the other hand, EDP, when treated with a mixture of acrylic and metacrylic acids reacts only with the former which is a strong electrophil. These two observations support the assumption that the P atom has a nucleophilic character. Thermal analysis and NMR data on P^{31} were used to elucidate the nature of the intermediates. IR spectra were also discussed.

2/2

USSR

UDC 547.241 + 547.7 + 546.22

VASYANINA, M. A., and KHAYRULLIN, V. K., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reaction of 4-Methyl-2-ethyl-2,5-dioxo-1,2-oxaphoapholane With Phosphorus Pentasulfide"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 12, Dec 72, pp 2644-2648

Abstract: The reaction of 4-methyl-2-ethyl-2,5-dioxo-1,2-oxaphospholane with phosphorus pentasulfide was investigated. The reaction is a complex one with many intermediate stages leading to a mixture of products and tars, the quantity of the latter increasing with rising temperature. In the process all oxygen atoms are replaced by sulfur atoms with concurrent dehydrogenation. The reduction of 4-methyl-2-ethyl-5-oxo-2-thio-1,2-thiaphospholene-3 with triphenylphosphine occurs via the thio-thione rearrangement leading to the formation of 4-methyl-2-ethyl-5-thio-1,2-oxaphospholene-3.

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USSR

UDC 542.91:547.1'118

PUDOVIK, A. N., DMITRIYEVA, G. V., ANOSHINA, N. P., ZYABLIKOVA, T. A., and KHAYRULLIN, V. K., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reaction of Chlorophosphines with β-Chloroacrylic Acid"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 5, May 72, pp 1159-1164

Abstract: The article describes the reaction of methyl-, ethyl-, and phenyldichlorophosphine with β-chloroacrylic acids, as well as results of thermographic studies of some reactions of this type. The reaction of methyl-, ethyl- and phenyldichlorophosphine with cis-β-chloroacrylic acid gives alkyl- or aryl-(β-chloroformylvinyl)phosphinic acid chlorides, while the reaction with trans-β-chloroacrylic acid gives trans-β-chloroacrylic acid chloride.

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USSR

UDC 542.91:661.718.1

VASYANINA, M. A., KHAYRULLIN, V. K., and PUDOVIK, A. N., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reaction of Substituted 2,5-Dioxo-1,2-oxaphospholanes With Mercaptans"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 8, Aug 71, pp 1722-1726

Abstract: The reactions of substituted 2,5-dioxo-1,2-oxaphospholanes with mercaptans give a mixture consisting of two isomers, viz. ethyl- or phenyl-(β-carbalkylthioalkyl)phosphinic acids and thioalkyl esters of ethyl- or phenyl-β-carboxyalkylphosphinic acids. The reactions to a significant extent proceed contrary to the principle of strong and mild acids and bases with attack on the carbonyl group by the mercaptan, probably because of steric hindrances.

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USSR

UDC 542.91:661.718.1

KHAYRULLIN, V. K., DMITRIYEVA, G. V., and PUDOVIK, A. N., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Substituted Bicyclic Phospholanes"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 71, pp 1249-1254

Abstract: The interaction of 2-ethyl-2,5-dioxo-1,2-oxa-3-phospholene and 3-methyl-2-ethyl-2,5-dioxo-1,2-oxa-3-phospholene with 2,3-dimethyl-1,3-butadiene gives the corresponding diene synthesis reaction adducts. Alcoholysis of 5,6-dimethyl-1-ethyl-1,3-dioxo-2-oxa-1-phosphabicyclo-[3,0,4]-no-5,6-nene goes counter to R. G. PEARSON's rule with the attack of alcohol on the carbon of the carbonyl group of the ring and the formation of 4-ethylhydroxyphosphonyl-5-carbethoxy-1,2-dimethylcyclohexene. This can be explained by the presence of steric factors which hinder the attack on the phosphorus atom by alcohol.

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USSR

UDC 542.91:661.718.1

KHAYRULLIN, V. K., DMITRIYEVA, G. V., and PUDOVIK, A. N., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reaction of Chloromethyldichlorophosphine with Propiolic Acid"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 71, pp 1254-1259

Abstract: The article describes results of a study of the reaction of chloromethyldichlorophosphine with propiolic acid. The reaction gives chloromethyl-β-chloroformyl vinylphosphinic acid chloride, which reacts with alcohol in the presence of triethylamine to give ethyl ester of chloromethyl-β-carbethoxy vinylphosphinic acid. When the latter is treated with PCl_5, of the two ethoxy groups only the ethoxy group at the phosphorus is replaced by a chlorine atom. This can be seen by comparing spectrograms of the initial ester and the resultant chloromethyl-β-carbethoxy vinylphosphinic acid chloride. Heating of chloromethyl-β-chloroformyl vinylphosphinic acid with acetic anhydride gives acetyl chloride and 2-chloromethyl-2,5-dioxo-1,2-oxa-3-phospholene, which readily enters into diene synthesis reaction with 2,3-dimethyl-1,3-butadiene to give 5,6-dimethyl-1-chloromethyl-1,3-dioxo-2-oxa-1-phosphabicyclo-[3,0,4]-no-5,6-nene. In the alcoholysis of 2-chloromethyl-2,5-dioxo-1,2-oxa-3-phospholene

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KHAYRULLIN, V. K., et al., Izvestiya Akademii Nauk SSR, Seriya Khimicheskaya, No 6, Jun 71, pp 1254-1259

the attack by alcohol is directed against the phosphorus atom, while in the alcoholysis of 5,6-dimethyl-1-chloromethyl-1,3-dioxo-2-oxa-1-phosphabicyclo-[3,0,4]-no-5,6-nene the attack by alcohol, contrary to the ideas developed by R. G. PEARSON, is directed against the carbon atom of the carbonyl group to give 4-chloromethylhydroxyphosphinyl-5-carbethoxy-1,2-dimethylcyclohexene, probably as a result of steric factors.

2/2

USSR UDC 542.91 + 661.718.1

PUDOVIK, A. N., KHAYRULLIN, V. K., and KONDRAT'YEVA, R. M., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Synthesis of 5-Methyl-2-ethyl-4-chloro-2-keto-1,2-oxa-4-phospholene"

Moscow, Izvestiya Akademii Naul SSSR, Seriya Khimicheskaya, No. 11, Nov 70, pp 2548-2553

Abstract: The article reports the counter synthesis of 5-methyl-2-ethyl-4-chloro-2-keto-1,2-oxa-4-phospholene (III). Chlorination of 5-methyl-2-ethyl-2-keto-1,2-oxa-4-phospholene (I) gives 5-methyl-2-ethyl-4,5-dichloro-2-keto-1,2-oxaphospholane (II), which is readily dehydrochlorinated with triethylamine in benzene to give III. Subsequent conversion of III gives the ethyl ester of ethyl-(β-chloro-β-keto-butyl)phosphinic acid (IV) and 5-methyl-2-ethyl-4,4,5-trichloro-2-keto-1,2-oxaphospholane (V). V is readily dehydrochlorinated on treatment with 2 M triethylamine in benzene to give triethylamine hydro-

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USSR

PUDOVIK, A. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, Nov 70, pp 2548-2553

chloride and 2-ethyl-5-methylene-4-chloro-2-keto-1,2-oxa-3-phospholene (VI).

The reaction of ethyl- or phenyldichlorophosphine with methyl isopropenyl ketone in the presence of acetic anhydride gives 4,5-dimethyl-2-ethyl-(VII) and 4,5-dimethyl-2-phenyl-2-keto-1,2-oxa-4-phospholenes (VIII). VII and VIII are readily chlorinated at room temperature to give oxaphospholanes, which react with 2 M triethylamine in an inert solvent to give 4-methyl-2-ethyl-(IX) and 4-methyl-2-phenyl-5-methylene-2-keto-1,2-oxa-3-phospholene (X). IX and X readily react with water or alcohols to give phosphorylated α,β-unsaturated ketones.

The IR spectra for the various products are described.

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USSR

UDC 547.241 + 547.298.1

PUDOVIK, A. N., KHAYRULLIN, V. K., and DMITRIYEVA, G. V., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reaction of Chlorophosphines With Acrylamides and Methacrylamides in the Presence of Acetic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 5, May 70, pp 1034-1040

Abstract: The authors studied reactions of alkyldichlorophosphines, phenyldichlorophosphine and diethylchlorophosphine with substituted and unsubstituted amides of acrylic and methacrylic acids in the presence of acetic acid. It was found that alkyl- or aryldichlorophosphines react with dialkylamides of acrylic acid to form alkyl- or aryl(β-dialkylcarbamoylethyl)phosphinic acid chlorides. Diethylchlorophosphine reacts with the diethylamide of acrylic acid to give diethyl(β-diethylcarbamoylethyl)phosphine oxide. Dichlorophosphines react with amides of monosubstituted amides of α,β-unsaturated car-

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USSR

PUDOVIK, A. N., et al., Zhurnal Obshchey Khimii, Vol 40, No 5, May 70, pp 1034-1040

boxylic acids in the presence of acetic acid to form substituted 2,5-dioxo-1,2-azaphospholanes. The likeliest mechanism for reactions of chlorophosphines with amides of α,β-unsaturated acids in the presence of acetic acid is one whereby the reaction begins with a nucleophilic attack of the β-carbon atom of the amide by the three-coordinate phosphorus atom.

2/2

UDC 547.241 + 547.298.1

USSR

PUDOVIK, A. N., VASYANINA, M. A., and KHAYRULLIN, V. K., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Esters of Aryl(β-carbamoylalkyl)phosphinic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 5, May 70, pp 1030-1034

Abstract: Reactions of ethyl- and arylalkoxychlorophosphines with acrylamides and methacrylamides in the presence of acetic acid give ethyl- and aryl(β-carbamoylalkyl)phosphinic acid esters. The article considers the direction of the reactions.

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USSR

UDC 542.91 + 661.718.1

KHAYRULLIN, V. K., DMITRIYEVA, G. V., and PUDOVIK, A. N., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Kazan, Academy of Sciences USSR

"Reaction of Ethyldichlorophosphine With Acrylic Acid Esters"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 70, pp 871-876

Abstract: The reaction of ethyldichlorophosphine with acrylic acid esters was studied in the presence of a proton donor to determine the reaction center of the conjugated system C:C-C:O in reactions with substituted dichlorophosphines. On the basis of their experimental data the authors propose the following mechanism for the reaction. The tricoordinated phosphorus atom of ethyldichlorophosphine carrying the unshared electron pair attacks the beta-carbon atom of acrylic ester. The bipolar ion formed adds a proton from the acetic acid by its negative end, while its anion adds to phosphorus. The intermediate complex formed is stabilized by splitting off an acyl chloride molecule. As a result of such a reaction the chloroanhydride of ethyl-(β-carbalkoxyethyl)-phosphinic acid and

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KHAYRULLIN, V. K., et al, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 70, pp 871-876

acetyl chloride are formed. When the reaction is carried out in the presence of acetic acid, the main products are the chloroanhydrides of ethyl-(β-carbalkoxyethyl)-phosphinic acid.

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Organophosphorus Compounds

UDC 542.91 + 661.718.1

USSR

VASYANINA, M. A., KHAYRULLIN, V. K., and PUDOVIK, A. N., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reactions of Ethyl- and Arylalkoxychlorophosphines With Propiolic Acid"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 2, Feb 70, pp 452-455

Abstract: Ethyl- and arylalkoxychlorophosphines react with propiolic acid to give esters of ethyl- or aryl-β-chloroformylvinylphosphinic acids (A). On distillation they eliminate alkyl chloride and convert to 2-ethyl- or 2-aryl-2,5-dioxo-1,2-oxa-3-phospholenes. Treatment of the undistilled products with alcohol gives esters of ethyl- or aryl-β-carbethoxyvinylphosphinic acids. The interaction of type A adducts with butyl mercaptan gives tert.-(1,1,1-trichloro)butyl esters of ethyl- and phenyl-β-carbobutylthiovinylphosphinic acids.

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1/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--SYNTHESIS OF PHENYL,BETA,CHLOROFORMYLVINYLPHOSPHINIC ACID CHLORIDE -U-

AUTHOR-(03)-KHAYRULLIN, V.K., DMITRIEVA, G.V., PUDOVIK, A.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 468-72

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, CHLORINATED ORGANIC COMPOUND, BENZENE DERIVATIVE, PHOSPHINIC ACID, HETEROCYCLIC BASE COMPOUND, PHOSPHORUS SULFIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0851 STEP NO--UR/0062/70/000/002/0468/0472

CIRC ACCESSION NO--AP0119755

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 010

CIRC ACCESSION NO--AP0119755

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDING 7 G PROPIOLIC ACID TO 17.8 G PH PCL SUB2 IN C SUB6 H SUB6 (EXOTHERM) GAVE ON THE FOLLOWING DAY 50PERCENT PHP(O)CLCH:CHCOCL, B SUB0.04 140DEGREES, D PRIME20 1.3884, N PRIME20 SUB0 1.5795. THIS (10.5 G) AND 4.5 G AC SUB2 O IN C SUB6 H SUB6 HEATED 1 HR AT 60DEGREES GAVE BZCL AND 80PERCENT I, B SUB0.04 165DEGREES, 1.3464, 1.5720. THIS (1 G) AND 0.2 ML H SUB2 O IN 20 MIN AT 60DEGREES GAVE 94PERCENT PHP(O)(OH)CH:CHCO SUB2 H, M. 76-80EGREES. SIMILARLY, ETOH GAVE 75PERCENT PHP(O)(OH)CH:CHCO SUB2 ET (IA), M. 138-40DEGREES. TO 18.3 G PHP(O)(OH)CH:CHCO SUB2 ET WAS ADDED 14.2 G PCL SUB5 AND CCL SUB4 AND THE MIXT. HEATED 1 HR AT 60DEGREES TO GIVE 91.3PERCENT PHP(O)CLCH:CHCO SUB2 ET (II), B SUB0.04 152DEGREES, 1.2713, 1.5455. TO 2 G II IN C SUB6 H SUB6 HEPTANE WAS ADDED 0.5 ML H SUB2 O AND 1 G ET SUB3 N TO YIELD 54PERCENT IA. II IN HEPTANE,C SUB6 H SUB6 TREATED WITH BUSH AND ET SUB3 N GAVE 83PERCENT PHP(O)(SBU)CH:CHCO SUB2 ET, B SUB0.04 180-2DEGREES, 1.1339, 1.5510. IR CURVES (6) WERE SHOWN.

FACILITY: INST.ORG. FIZ. KHIM. IM. ARBUZOVA, KAZAN, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--REACTIONS OF ETHYL AND ARYLALKOXYCHLOROPHOSPHINES WITH PROPIOLIC ACID -U-

AUTHOR-(03)-VASVANINA, M.A., KHAYRULLIN, V.K., PUDOVIK, A.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 452-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HETEROCYCLIC BASE COMPOUND, ORGANIC PHOSPHORUS COMPOUND, BENZENE DERIVATIVE, MERCAPTAN, IR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0846 STEP NO--UR/0062/70/000/002/0452/0455

CIRC ACCESSION NO--AP0119750

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--23OCT7C

CIRC ACCESSION NO--AP0119750

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO 0.05 MOLE RP(OR PRIME1)CL IN C SUB6 H SUB6 UNDER CO SUB2 WAS ADDED 0.05 MOLE PROPIOLIC ACID SMALLER THAN 30DEGREES, THE MIXT. KEPT 2 HR AT ROOM TEMP., AND 0.05 MOLE ABS. ETOH ADDED OVER 2 HR TO GIVE RP(O)(OR PRIME1)CH:CHCO SUB2 ET (R AND R PRIME1 SHOWN): ET, CCL SUB3 CME SUB3, 33PERCENT B SUB0.04 142-3DEGREES, D PRIME20 1.3039, N PRIME20 SUBD 1.4920; ET, 1,TRICHLOROMETHYLCYCLOPENTYL, 40PERCENT, B SUB0.04 176-8DEGREES, 1.3108, 1.5050; PH, CCL SUB3 CME SUB2, 29PERCENT, B SUB0.04 190-2DEGREES, 1.3249, 1.5400; AND P,MEC SUB6 H SUB4, CCL SUB3 CME SUB2, 29PERCENT, B SUB0.04 192-4DEGREES, 1.3010, 1.5360. REACTION OF RP(OCME SUB2 CCL SUB3)CL WITH PROPIOLIC ACID IN C SUB6 H SUB6 2 HR AT ROOM TEMP., FOLLOWED BY I MOLE BUSH AND KEEPING THE WHOLE 3 HR GAVE THE FOLLOWING RP(O)(OCME SUB2 CCL SUB3)CH:CHCOSBU; ET, 30PERCENT, B SUB0.04 177-9DEGREES, 1.2695, 1.5160; AND PH, 23PERCENT, B SUB0.04 208-10DEGREES, 1.2931, 1.550. TO 16 G PHPCL(OCME SUB2 CCL SUB3) IN C SUB6 H SUB6 UNDER CO SUB2 WAS ADDED 3.5 G PROPIOLIC ACID TO YIELD AFTER 2 HR AT ROOM TEMP. 30PERCENT I, B SUB0.04 153-4DEGREES, 1.3454, 1.5700: IR SPECTRAL CURVES (3) ARE SHOWN. FACILITY: INST. ORG. FIZ. KHIM. IM. ARVUZOVA, KAZAN, USSR.

UNCLASSIFIED

USSR

UDC 542.91:547.1'118

ALEKSANDROVA, I. A., YARULLINA, L. I., and KHAYRULLIN, V. K., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reaction of Vinyldichlorophosphine With Acrylic and Propiolic Acids"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 72, pp 1386-1390

Abstract: For further elucidation of the effect of the phosphorus substituent in chlorophosphine on the intensity of the reaction with α,β-unsaturated acids, the authors studied the reaction of vinyldichlorophosphine with acrylic and propiolic acids. The reaction of vinyldichlorophosphine with acrylic acid, which is accompanied by initial nucleophilic attack by the phosphorus atom on the β-carbon atom of the acid, results in the formation of vinyl-(β-chloroformylethyl)phosphinic acid chloride (II). Hydrolysis of II gives vinyl-(β-carboxyethyl)phosphinic acid, the interaction of II with alcohol gives the ethyl ester. Heating of II with $(CH_3CO)_2O$ gives 2-vinyl-2,5-dioxo-1,2-oxaphospholane. Reaction of the latter with ethanol gives ethyl ester of vinyl-(β-carboxyethyl)phosphinic acid, with aniline vinyl-(β-phenylcarbamoylethyl) phosphinic acid. The reaction of vinyldichlorophosphine with propiolic acid gives vinyl-(β-chloroformylvinyl)phosphinic acid chloride, which could not be isolated in pure form.

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USSR

UDC 535.361

KHAYRULLINA, A. YA. and IVANOV, A. P.

"Study of Light Field Fluctuations in a Turbid Medium"

Leningrad, Optika i Spektroskopiya, Vol. 28, No. 3, Mar 70, pp 513-517

Abstract: Fluctuations in a light field produced by a system of chaotically moving particles illuminated by a spatially coherent radiation source is studied. The particles are subject only to Brownian motion. It is noted that the intensity of a light field developed by a system of scattering particles is ordinarily determined without considering phase relationships of the summable waves, since consideration of wave properties is not essential in very many practical problems. Careful examination indicates, however, that in illumination of a medium with radiation having a high degree of spatial coherence, the light field formed through interference of scattered waves will be nonuniform in space and time variable. The nature of this granular structure is caused by optical and geometrical parameters and the respective positions of scattering centers, and the frequency of light field fluctuations is determined by the mobility of particles of the turbid medium. The intensity of the radiation field in some fixed direction in liquid and gaseous media will therefore vary in time due to the

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KHAYRULLINA, A. YA. and IVANOV, A. P., Optika i spektroskopiya, Vol. 28, No. 3, Mar 70, pp 513-517

variability of the phase relationships of the secondary scattering waves. The effect of the concentration of scattering particles on the nature of fluctuations in the light field intensity is analyzed.

- END -

5915
CSO: 1862

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1/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--STUDY OF LIGHT FIELD FLUCTUATIONS IN A TURBID MEDIUM -U-

AUTHOR-(02)-KHAYRULLINA, A.YA., IVANOV, A.P.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, OPTIKA I SPEKTROSKOPIYA, VOL. 28, NO. 3, MAR 70, PP 513-517

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--BROWNIAN MOTION, PARTICLE SCATTER, COHERENT LIGHT, TURBIDITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1450 STEP NO--UR/0051/70/028/003/0513/0517

CIRC ACCESSION NO--AP0136777

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201310012-9"

2/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136777

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FLUCTUATIONS IN A LIGHT FIELD PRODUCED BY A SYSTEM OF CHAOTICALLY MOVING PARTICLES ILLUMINATED BY A SPATIALLY COHERENT RADIATION SOURCE IS STUDIED. THE PARTICLES ARE SUBJECT ONLY TO BROWNIAN MOTION. IT IS NOTED THAT THE INTENSITY OF A LIGHT FIELD DEVELOPED BY A SYSTEM OF SCATTERING PARTICLES IS ORDINARILY DETERMINED WITHOUT CONSIDERING PHASE RELATIONSHIPS OF THE SUMMABLE WAVES, SINCE CONSIDERATION OF WAVE PROPERTIES IS NOT ESSENTIAL IN VERY MANY PRACTICAL PROBLEMS. CAREFUL EXAMINATION INDICATES, HOWEVER, THAT IN ILLUMINATION OF A MEDIUM WITH RADIATION HAVING A HIGH DEGREE OF SPATIAL COHERENCE, THE LIGHT FIELD FORMED THROUGH INTERFERENCE OF SCATTERED WAVES WILL BE NONUNIFORM IN SPACE AND TIME VARIABLE. THE NATURE OF THIS GRANULAR STRUCTURE IS CAUSED BY OPTICAL AND GEOMETRICAL PARAMETERS AND THE RESPECTIVE POSITIONS OF SCATTERING CENTERS, AND THE FREQUENCY OF LIGHT FIELD FLUCTUATIONS IS DETERMINED BY THE MOBILITY OF PARTICLES OF THE TURBID MEDIUM. THE INTENSITY OF THE RADIATION FIELD IN SOME FIXED DIRECTION IN LIQUID AND GASEOUS MEDIA WILL THEREFORE VARY IN TIME DUE TO THE VARIABILITY OF THE PHASE RELATIONSHIPS OF THE SECONDARY SCATTERING WAVES. THE EFFECT OF THE CONCENTRATION OF SCATTERING PARTICLES ON THE NATURE OF FLUCTUATIONS IN THE LIGHT FIELD INTENSITY IS ANALYZED.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201310012-9"

1/2 028 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--DETERMINATION OF THE AMOUNT OF HYDROGEN IN CATALYSTS AT HIGH TEMPERATURES BY THE HYDROGENATION OF ETHYLENE -U-

AUTHOR-(05)-IZMAYLOV, R.I., FEDOROV, G.I., KHAYRULLINA, R.Z., BORISOVA, V.V., DAVLESUPOVA, R.G.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 369-72

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HYDROGEN, HYDROGENATION, ISOMERIZATION, HYDROCARBON, PALLADIUM, NICKEL, CATALYST, SORPTION, HIGH TEMPERATURE EFFECT, ETHYLENE, PLATINUM, CHROMATOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0639 STEP NO--UR/0062/70/000/002/0369/0372

CIRC ACCESSION NO--AP0119551

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119551

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DETAILED DESCRIPTION IS GIVEN FOR THE CONSTRUCTION AND OPERATION OF APP. FOR DETG. SORBED H AT 150-500DEGREES, I.E. UNDER CONDITIONS USUALLY USED FOR HYDROGENATION AND ISOMERIZATION REACTIONS OF HYDROCARBONS. THE APP. CONSISTS OF A REACTION VESSEL CONTG. A 2-3 MG SAMPLE OF THE CATALYST BEING TESTED, PLACED IN A FLOW SYSTEM SIMILAR TO THAT OF A CHROMATOGRAPH AND PROVIDED WITH SWITCHABLE SOURCES OF ARGON, H, AND C SUB2 H SUB4. THE AMT. OF SORBED H ON 12 TYPICAL PT, PD AND NI CATALYSTS ON VARIOUS SUPPORTS WAS TABULATED AS WAS THE INFORMATION OF SORPTION OF H AT VARIOUS TEMPS. ON PT AND NI AND PD CATALYSTS UP TO 500DEGREES. PROMOTION BY SALTS OF MN AND CR ENHANCES THE STRENGTH OF BONDING OF H TO THE METAL.

FACILITY: INST. ORG. FIZ. KHIM. IM. ARBUZOVA, KAZAN, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201310012-9"

UDC 681.14

USSR

KHAYRUSOVA, L. I., Leningrad Institute of Precision Mechanics and Optics

"Experimental-Statistical Study of the Effect of the External Environment on the Characteristics of a Thin-Film Element"

Leningrad, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Priborostroyeniye, Vol XIV, No 3, 1971, pp 58-60

Abstract: Results of investigating two process cycles for manufacturing a film triode with 17 input variables and 32 experiments are investigated. Before beginning the experimental-statistical study the hypothesis was advanced that there were a small number of predominate process factors including the first five variables. The a posteriori composition of the mentioned group had to be established by the results of the processing. The data from a comparative analysis of the two series confirm the initial hypothesis of technological generality of the investigated cycles which is expressed in the occurrence of the same factors. However, in each series there are a number of additional input variables making up the specific nature of the investigated cycles. One series was selected over the other on the basis of the fact that the volume of information can be considered an important quality criterion of the investigated process.

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UDC 537.29

USSR

SMOLENTSEV, V. P., KHAYRUTDINOV, A. K., OLEYNICHENKO, T. F., and KOBELEVA, T. K., Kazan

"Metallographic Investigations of the Surface Layer of Alloys After Dimensional Electrochemical Treatment"

Moscow, Fizika i Khimiya Obrabotki Metallov, No 1, Jan-Feb 71, pp 135-137

Abstract: Results are presented on metallographic investigations of surface layers of hardened 40KhNMA and 0KhN3MFA steels and AVT1 and VTZ-1 alloys after dimensional electrochemical treatment within the whole range of current densities in electrolytes used in the production of channels in long-measuring parts. Recommendations for applying dimensional electrochemical treatment and for the selection of allowances for the after treatment are given. The 40KhNMA and 0KhN3MFA steels, hardened to HRC 35-37, and the AVT1 aluminum alloy showed no signs of corrosion by the electrochemical treatment, but the VTZ-1 titanium alloy corroded along the grain boundaries up to a depth of 0.03 mm.

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USSR UDC 669.18.046.554

SIDOROV, N. V., GERASIMOV, Yu. V., KHAYRUTDINOV, R. M., FILATOV, S. K., KHASIN, G. A., BARMOTIN, I. P., KAS'YANOV, A. G., CHEREMNYKH, B. A., and ISHMURZIN, M. G., Zlatoust Metallurgical Plant, Scientific Research Metallurgical Institute, Chelyabinsk

"Out-of-Furnace REfining of Low-Carbon Corrosion-Resistant Steels"

Moscow, Metallurg, No 12, Dec 70, pp 22-23

Abstract: The smelting technology of low-carbon corrosion-resistant steels in electric arc furnaces with argon scavenging in the foundry ladle has been developed and introduced into production at the Zlatoust Metallurgical Plant. The main principles of the out-of-furnace degassing effectiveness depends on the chemical composition of the steel, the slag, and the scavenging parameters were investigated.

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KHAYRUTDINOV R.M.

Acc. Nr.: AN0104123 Ref. Code: 71R9003

TITLE-- ANNOUNCEMENT OF THE COMMITTEE ON LENIN AND STATE PRIZES, U.S.S.R.

NEWSPAPER-- IZVESTIYA, MAY 28, 1970, P 4, COLS 1-5

ABSTRACT-- NINETY ONE BASIC AND APPLIED RESEARCH WORKS HAVE BEEN NOMINATED FOR THE STATE PRIZES. TWO OF THESE, "THE MULTI-PURPOSE INDUSTRIAL HELICOPTER KA-26", BY N. I. KAMOV, V. B. ALPEROVICH, V. B. BARSHEVSKIY, A. A. DMITRIYEV, G. I. IOFFE, M. A. KUPFER, L. A. POTASHNIK, N. N. PRIOROV, A. G. SATAROV, I. M. VEDENEYEV, S. B. BREN, AND V. A. NAZAROV, AND "THE DEVELOPMENT OF TURBOFAN JET ENGINES NK-8 AND NK-8-4, AND THE DEVELOPMENT AND REDUCTION TO SERIAL PRODUCTION A SYSTEM OF TECHNOLOGICAL PROCESSES WHICH ASSURED WIDE USES FOR TITANIUM ALLOYS", BY N. D. KUZNETSOV, M. T. VASILISHIN, V. A. KURGANOV, P. M. MARKIN, V. D. RADCHENKO, P. A. SUKHOV, A. A. MUKHIN, V. G. SHITOV, G. I. MUSHENKO, L. A. SHKODO, AND G. P. DOLGOLENKO, HAVE BEEN SUBMITTED BY THE MINISTRY OF THE AVIATION INDUSTRY.

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Reel/Frame 19870555

Acc. Nr.: AN0104123

"A SERIES OF INVESTIGATIONS INTO THE DYNAMICS OF A BODY WITH FLUID-FILLED CAVITIES", /65-68/, BY N. N. MOISEYEV, A. A. PETROV, V. V. RUMYANTSEV AND F. L. CHERNOUS'KO AND "ULTRA HIGH PRECISION JIG BORING MILLS WITH 1,000 X 1,600 AND 1,400 X 2,240 MM PLATENS", BY A. I. KIR'YANOV, V. G. ABRAMOVICH, I. V. GUTKIN, A. S. ALIMPIYEV, G. B. PAUKOV, AND A. S. YEGUDKIN, HAVE BEEN SUBMITTED BY THE COMPUTATION CENTER OF THE ACADEMY OF SCIENCES AND THE MINISTRY OF THE MACHINE TOOL CONSTRUCTION AND TOOL INDUSTRY, RESPECTIVELY.

"THE RADICALLY IMPROVED MELTING TECHNOLOGY OF CRITICAL-PURPOSE HIGH-ALLOY STEELS AND ALLOYS OF IMPROVED QUALITY ACHIEVED BY THE INERT GAS TREATMENT OUTSIDE THE FURNACE", BY YU. V. GERASIMOV, O. M. CHEKHOMOV, N. V. SIDOROV, S. K. FILATOV, B. A. CHEREMNYKH, R. M. KHAYRUTDINOV, I. P. BARMOTIN, L. K. KOSYREV, K. P. BAKANOV, N. N. VLASOV, P. I. MELIKHOV, AND N. A. TULIN, HAS BEEN SUBMITTED BY THE ZLATOUST METALLURGICAL PLANT.

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KZ

Reel/Frame
19870556

USSR UDC: 51

KHAYRUTDINOV, Z. M.

"Determining the Optimum Order for Job Performance on Decentralized Objects by a Single Execution Unit"

[Tr.] Krasnodar. fil. Vses. neftegaz. NII ([Works] of the Krasnodar Affiliate of the All-Union Scientific Research Institute of Petroleum and Gas), 1971, vyp. 21, pp 72-75 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V938)

Translation: The paper deals with analysis of the feasibility of using the method of dynamic programming in the problem of determining the optimum order for carrying out repair jobs on petroleum or gas wells by a single repair team with consideration of the distances between wells. An algorithm for solving the problem is given which utilizes the criterion of minimum loss of overall petroleum or gas extraction from all wells. Author's abstract.

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USSR

UDC: 51

ALEKHIN, I. M., KHAYRUTDINOV, Z. M., TSYBUL'SKIY, G. P.

"On Solving the Problem of Optimum Distribution of a Given Yield of Petroleum or Gas Among Objects by a Dynamic Programming Method"

[Tr.] Krasnodar. fil. Vses. neftegaz. NII ([Works] of the Krasnodar Affiliate of the All-Union Scientific Research Institute of Petroleum and Gas), 1971, vyp. 21, pp 60-66 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V937)

Translation: The analytical form and a modified computational scheme are presented for solution of the problem of distributing the petroleum or gas yield determined for a territory among objects by using the methods of dynamic programming. It is assumed that the extraction capacities of the objects are limited both from below and from above. Both schemes are realized on the "Minsk-22" digital computer. Examples are given of calculations for several cases, and the results found by each scheme are compared. Resumé.

1/1

USSR UDC 541.57:546.11:547.1'118

SHAGIDULLIN, R. R., LIPATOVA, I. P., VACHUGOVA, L. I., CHERKASOV, R. A., and KHAYRUDDINOVA, F. KH., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Acad. Sc. USSR, and Kazan State University Imeni V. I. Ul'yanov-Lenin

"Hydrogen Bonding in Dithio Acids of the Pentavalent Phosphorus"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 72, pp 847-851

Abstract: IR spectra of a series of liquid phosphinic, phosphonic and phosphoric dithio acids and their solutions in CCl_4 were studied in temperature range 253-293°K. In pure liquids and in concentrated CCl_4 solutions dimers were found to form via the hydrogen bonding. The SH group acted as the proton donor, the acceptor being the thiono sulfur atom in the phosphinic acid, and the oxygen atom of the ether group in phosphonic and phosphoric acids. The hydrogen bonding between the SH group and thiophosphoryl sulfur in the phosphinic acid is stronger than the SH hydrogen bonding with the oxygen [illegible] phosphonic acid derivatives, or of the dioxane. In dithio [illegible] dithiophosphinic and phosphonic acids exist in [illegible] dimers; the cyclic and the pseudocyclic [illegible] The stabilization of the dimers is due [illegible].
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1/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--NA IS PARALLEL TO C SUB2 H SUB5 COO, NO SUB3, NO SUB2; NA IS PARALLEL TO C SUB3 H SUB7 COO, NO SUB3, NO SUB2; AND NA IS PARALLEL TO

AUTHOR-(02)-TSINDRIK, N.M., KHAYTINA, M.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(5), 1405-13.

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SODIUM, NITRATE, NITRITE, CARBOXYL RADICAL, COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0924 STEP NO--UR/0078/70/015/005/1405/1413

CIRC ACCESSION NO--AP0136355

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0136355
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CRYSTN. DATA OF 16 CROSS SECTIONS OF NA IS PARALLEL TO NO SUB3, NO SUB2, ETCO SUB2 AND NA IS PARALLEL TO NO SUB3, NO SUB2, PRCO SUB2, AND 8 CROSS SECTIONS OF NA IS PARALLEL TO NO SUB3, NO SUB2, ISO PRCO SUB2 SYSTEMS ARE TABULATED. SYSTEMS HAVING NORMAL CARBOXYLATE ANIONS UNDERGO COMPLEX FORMATION WHICH IS NOT OBSD. IN THE ISO PRCO SUB2 SYSTEM.

UNCLASSIFIED

USSR UDC 621.395.385.4

LEBEDEV, G. V., TRUBITSYNA, G. V., KHAYTMAN, Ye. N., Barnaul Radio Plant

"A Multibeam Radio Channel Simulator"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 5, Feb 72, Author's Certificate No 327622, Division H, filed 18 Mar 70, published 26 Jan 72, pp 174-175

Translation: This Author's Certificate introduces: 1. A multibeam radio channel simulator containing n unit-beam channels, each of which is made in the form of a parallel circuit made up of a regular-component subchannel consisting of a regular-component level regulator, a subchannel for the random cophase component consisting of an amplitude modulator for the co-phase component and a random-process generator, and a quadrature-component subchannel consisting of a phase shifter, random process generator and quadrature-component amplitude modulator. The simulator also contains a unit-beam channel adder and an output converter. As a distinguishing feature of the patent, the device is designed for simulating a wide range of values of ionospheric turbidity up to the limits observed in actual radio channels. The signal spectrum generator in the low-frequency region

USSR

LEBEDEV, G. V. et al., USSR Author's Certificate No 327622

is connected through the taps of low-frequency delay lines to the frequency converter. The output of the frequency converter is connected to the input of the regular-component subchannel. 2. A modification of this simulator distinguished by the fact that provision is made for simulating Doppler shifts as each of the beams is formed. For this purpose, a multiplier is connected between the adder and the beam attenuator.

2/2

USSR

KHAYTOV, R. KH., BAYMURADOV, T. B., and ABIRKULOV, A.

"Change of Biochemical Blood Indicators in Rabbits during Chronic Butiphos Poisoning"

Dokl. AN UzSSR (Reports of the Academy of Sciences Uzbek SSR), 1970, No 7, pp 57-58 (Uzbek summary) (from RZh-Biologicheskaya Khimiya, No 2, 25 Jan 71, Abstract No 2F2121 by I. IGNAT'YEV)

Translation: The administration of butiphos internally to rabbits in a dose of 12 mg/kg per day (1/20 LD; 5-60 days) induced a decline in total protein and gamma globulin content of the blood serum, an increase in sugar concentration and a decline in the activity of true cholinesterase in the blood.

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UDC 621.017.1.014.482

USSR

KHAITOV, R. M., and PANTELEYEV, E. I., Institute of Biophysics, Ministry of Health USSR

"Immunological Memory in Mice Following Lethal Irradiation and Shielding of an Extremity"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 6, 1973, pp 19-23

Abstract: CBA mice, 4 to 5 months old and 24-26 g in weight, were employed in studies to determine the effects of lethal irradiation (800 r) on the secondary immune response and the radioresistance of memory cells. Different groups of animals were either only immunized (0.5 ml of 2% SRBC, intraperitoneally) (controls), or immunized and 1.5 months later irradiated with protection of the right posterior extremity by a metal shield (6 mm lead, 1 mm aluminum) and reimmunized 12 days later, or immunized and irradiated with shielding without reimmunization, or irradiated with shielding and then immunized. The last group consisted of animals that were immunized, subjected to total body irradiation, and then were reimmunized. Comparison of blood hemagglutinin titers for the different groups at a comparative period of time, corresponding to 14-24 days after the secondary immunization,

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201310012-9"

USSR

KHAITOV, R. M., and PANTELEYEV, E. I., Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 6, 1973, pp 19-23

revealed that only the group that had been immunized, irradiated with shielding, and reimmunized gave an anamnestic response with a titer (in $\log_2$) of 8.7 ± 0.25 ($M \pm SE$). The titers for the other irradiated groups ranged from 4.2 to 4.6; the corresponding titer for the non-reimmunized controls was 5.9 ± 0.14. Thus, shielding of bone marrow was required for an anamnestic response in irradiated mice; irradiation alone caused the titers to fall. Further studies with spleen cell transfer experiments showed that cells from immunized and totally irradiated animals would not endow unimmunized totally irradiated recipients with the capacity to respond with an anamnestic reaction. However, spleen cells from immunized unirradiated donors did endow these recipients with the ability to respond with a secondary immune response, demonstrating that the immune memory cells are not radioresistant.

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USSR

Radiobiology

UDC 577.391:612.419

PETROV, R. V., and KHAYTOV, R. M., Institute of Biophysics, Ministry of Health USSR, Moscow

"Migration of Stem Cells From Screened Bone Marrow Following Irradiation in Varying Doses"

Moscow, Radiobiologiya, Vol 12, No 1, Jan/Feb 72, pp 69-76

Abstract: A series of experiment , using exogenous and endogenous methods of cloning hemopoietic elements were performed to assess quantitatively the migration and repopulation of colony-forming stem cells (CFC) when a portion of bone marrow in mice is screened during x-ray irradiation. During the first 2 days following irradiation in 800-850 r doses, CFC content decreased by 58-60%; on the 14th day, it increased to 124%; in 21-30 days, it became normal. Data from a supplementary experiment showed that CFC reduction is due to emigration of stem cells into the blood stream, and that rapid repopulation of hemopoietic tissue is related to CFC emigration and circulation. Another study showed that all colonies in irradiated tissue were formed by stem cells migrating from screened bone marrow. Using this data as the starting point, a quantitative assay was made of intensity of migration. It was found that the number of colonies increases linearly in relation to

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USSR

PETROV, R. V., and KHAITOV, R. M., Radiobiologiya, Vol 12, No 1, Jan/Feb 72, pp 69-76

the length of time between screening and "turning off" screened bone marrow (with a second exposure); it constitutes about 4 colonies per hour. The rate of CFC migration remains intense for at least 24 hours. When compared with the protective activity of transplanted bone marrow, it was found that 10-100 times more colonies are required with screened bone marrow to achieve equal results. There was no evidence that screening is related to intensified CFC migration.

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K

USSR

UDC 612.419+612.42]:612.6.02:576.312.32

KHATTOV, R. M., Institute of Biophysics, Ministry of Health USSR

"Chromosome Analysis of Inactivation of Stem Cells After Transplantation of a Mixture of Bone Marrow Cells from Genetically Different Donors"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 4, 1970, pp 88-91

Abstract: Lethally irradiated F_1 mice (A X CBAT6T6) were given a mixture containing equal quantities of bone marrow cells from A and CBAT6T6 donors, while lethally irradiated CBAT6T6 recipients were given a mixture of F_1 (A X CBAT6T6) and F_1 (CBA X C57BL) donor cells. Cytogenetic analysis of colonies in the spleen and bone marrow of the recipients showed that transplantation of a mixture of bone marrow cells from genetically incompatible donors inactivates the stem cells of one of the genotypes. The capacity of the stem elements to form colonies is inhibited, as is their capacity to proliferate in recipient bone marrow.

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1/2 029 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--CHROMOSOMAL ANALYSIS OF INACTIVATION OF STEM CELLS IN TRANSPLANTATION OF A BONE MARROW MIXTURE FROM GENETICALLY DIFFERENT

AUTHOR--KHAETOV, R.M.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 49, NR 6, PP 88-91

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RADIATION SICKNESS, TISSUE TRANSPLANT, BONE MARROW, GENOTYPE, ANIMAL GENETICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0567

STEP NO--UR/0219/70/049/006/0088/0091

CIRC ACCESSION NO--AP0131190

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131190

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN LETHALLY IRRADIATED F SUB1 MICE (AXCBAT6T6) THE AUTHOR TRANSPLANTED MIXTURE OF EQUAL QUANTITIES OF BONE MARROW CELLS OF DONORS A AND SBAT6T6, WHILE TO RECIPIENTS OF SBAT6T6 THE DONOR CELLS OF F1-AXCBAT6T6 AND F SUB1 SBA TIMES C57BL WERE INTRODUCED. THE CYTOGENETIC ANALYSIS OF COLONIES IN THE SPLEEN AND OF BONE MARROW OF RECIPIENTS HAS DEMONSTRATED THAT THE TRANSPLANTATION OF A MIXTURE OF CELLS OF THE BONE MARROW FROM GENETICALLY INCOMPATIBLE DONORS IS FOLLOWED BY INACTIVATION OF STEM CELLS. SUBJECT TO INHIBITION ARE STEM CELLS OF ONE OF THE TWO TRANSPLANTED GENOTYPES (IN A MIXTURE OF A-CBA CELLS STEM CBA CELLS BECOME INACTIVATED, WHEREAS IN A MIXTURE OF F SUB1 AXCBA PLUS CBAXC57B1 CELLS, STEM CELLS OF CBAXC57BL GENOTYPE. SUBJECT TO INHIBITION IS NOT ONLY THE CAPACITY OF STEM ELEMENTS TO FORM COLONIES, BUT ALSO THEIR CAPACITY TO PROLIFERATION IN THE RECIPIENT'S BONE MARROW. FACILITY: INSTITUTE OF BIOPHYSICS, MOSCOW, MZ USSR.

UNCLASSIFIED

UDC 621.396.2.029.67

USSR

KHAYTUN, F. I., Candidate of Sciences

"The Influence of the Shape of Optical Pulse Signals on Conditions of Their Detection with Uneven-Spectrum Noise"

Optiko-mekhanicheskaya Promyshlennost', No 10, 1971, pp 3-5.

ABSTRACT: An estimate is presented of the dependence of the signal flash noise ratio on shape of optical pulses of fixed energy and amplitude with uneven spectrum noise under conditions of optimal filtration. It is demonstrated that the unevenness of the noise spectrum causes an increase in the influence of optical signal shape on detection conditions; however, in the case of the standard signals and noise studied, this increase is insignificant in most cases.

USSR UDC 51

KHAYU, V. G.

"Application of Graph Theory in Economics"

Tr. Kishinev, s.-kh. in-ta (Works of the Kishinev Agricultural Institute), 1972, No 86, pp 50-57 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V388)

Translation: A general idea of the PERT method and the possibilities of utilizing it in agriculture are presented. A study is made of steps in compiling the PERT chart. The calculations and the construction of the PERT chart were done in the example of planning the harvesting operations for two crops -- wheat and corn.

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Transformation and Structure

UDC 669.71'55'721

USSR

BER, L. B., VAYNBLAT, YU. M., DAVYDOV, V. G., KHAYUROV, S. S., and SHCHEGLOVA, N. M., All-Union Institute of Light Alloys

"Substructure Changes and Decomposition Processes in the Double Aging of Alloy AD-31 Under the Effect of Plastic Deformation"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 3, 1973, pp 583-590

Abstract: Electron microscopy and mechanical property measurements were employed to study substructure changes and decomposition processes in alloy AD-31 in sheet form with a composition of (in %): 0.73 Mg, 0.57 Si, 0.12 Fe, 0.03 Zn, 0.01 Mn, balance -- Al. The sheets were water quenched from 525°C and rolled in the cold state (30 and 90% reduction) either after quenching or after natural aging for one day. Samples were studied after deformation without subsequent aging and after aging at 155° for five hours. Out of 13 different combinations of quenching, aging and rolling reduction, it was found that the best combination of tensile strength and ductility is achieved by quenching, natural aging for one day, reduction of 90%, and aging at 155°C for 0.5 hours. This treatment yielded a TS of 38.3 kG/mm^2,

USSR

BER, L. B., et al., Fizika Metallov i Metallovedeniye, Vol 36, No 3, 1973, pp 583-590

and elongation of 14.5%. Increasing the aging time from 0.5 hours to 48 hours only reduces strength and ductility. Four figures, two tables, seven bibliographic references.

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UDC 621.377.622.12

USSR

KHAYUSTOV, V. F., SHIROCHKIN, R. S.

"Multiphase Trigger"

USSR Author's Certificate No 294234, Filed 9/06/68, Published 19/03/71, (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, 1971, Abstract No 11 A61 P).

Translation: Multiphase triggers containing cells (C) with positive feedback are known. The circuits of the counting inputs of these devices are rather complex due to the large number of elements involved. The device suggested differs from known devices in that the output light-emitting diode of each C is optically connected to the photodiodes of its own and the subsequent C. This simplifies the circuit of the counting input of the trigger. The circuit consists of a C with positive feedback around the transistor, light-emitting diodes, photodiodes, load resistors, base and emitter resistors. The photodiodes are located so that the light from the light-emitting diodes in their own and the preceding phases falls on their light-sensitive surfaces. When a voltage is fed to the power supply bus and the switch is briefly closed, the transistor of the first C opens. The load current of the transistor of the first C, passing through the common emitter resistor, light-emitting diode, and load resistors of the first C,

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USSR

KHAYUSTOV, V. P., SHIROCHKIN, R. S., USSR Author's Certificate No 294234, Filed 9/06/68, Published 19/03/71

causes the light-emitting diode of the first C to glow. The light flux of this light-emitting diode, striking the light-sensitive surface of the photodiodes of the first and second C, sharply decreases their resistance, as a result of which a photocurrent flows through the photodiode of the first C, through an intermediate connector and switch to the input of the transistor of the first C. This photocurrent holds the transistor in the saturated state after the switch is opened. Photocurrent does not pass through the photodiode of the second C, since the intermediate connector to which it is connected is not connected to the power supply by the switch. The load current of the transistor creates a voltage drop across the common emitter resistor, reliably blocking all remaining transistors. The multiphase trigger can remain in this first stable position (first C connected) as long as necessary. In order to switch the multiphase trigger to the next position, the switch is shifted to its opposite position. The photodiode of the second C is then connected through the intermediate connector and switch to the power supply. Since the photodiode is eliminated by the light-emitting diode of the first C, its photocurrent, reaching the input of the transistor of the second C, opens this transistor. Its load current, passing through the load resistors and the light-emitting diode of the second C, causes this diode to glow. The light flux of the light-emitting diode of

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USSR

UDC 621.377.622.12

KHAYUSTOV, V. P., SHIROCHKIN, R. S., USSR Author's Certificate No. 294234, Filed 9/06/68, Published 19/03/71.

the second C, striking the light-sensitive surface of the photodiodes of the second and third C, maintains the photocurrent of the photodiode of the second C after the light-emitting diode of the first C stops glowing (as a result of this connection of the photodiode of the first C from the power supply by the switch and blocking of the transistor of the first C). No photocurrent flows through the photodiode of the third C, since it, along with the photodiode of the first C and the other odd photodiodes, is disconnected from the power supply by the switch. A blocking potential on the common emitter resistor is now created by the load current of the transistor in the second C. The multiphase trigger can remain in this near stable position (second C connected) as long as desired (until the next control pulse arrives at the switch, reversing its position once more). The transition to subsequent stable positions of the multiphase trigger, the number of which is equal to the number of C, is achieved by the switch in the same manner. 1 Figure.

3/3

Converters

USSR UDC 621.374.5(088.8)

GUROVITS, L. S., KHAYUTIN, S. G., SHPICHINETSKIY, YE. S.

"Procedure for Combining a Piezoconverter with the Acoustic Line of an Ultrasonic Delay Line"

USSR Author's Certificate No 278746, Filed 29 Jul 68, Published 16 Nov 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4G269P)

Translation: A procedure is proposed for connecting a piezoconverter to the acoustic line of a delay line by a matching layer of indium alloys under pressure and thermal conditions. In order to increase the pass band of the delay line, the piezoconverter and the acoustic line are connected by a layer of indium-thalium-silver alloy containing 0.3-5.0 percent thalium, 0.3-2.5 percent silver and under a pressure of 25-30 kg/mm^2 at 130-135° C, and they are held under the indicated conditions for 3-6 hours. In order to increase the sound propagation rate in the matching layer, the latter is cut in the form of a plate of alloy rolled into foil at an angle of 40-45° to the rolling direction.

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USSR

UDC 612.13

BARAZ, L. A., VESELOVA, YE. S., MESHCHERSKIY, YE. L., and KHAYUTIN, V. M., Laboratory of Circulatory Control and Biophysics, Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, Moscow

"Blood Flow Through Forearm Muscles in Man After Static Exercises of Increasing Load"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 2, 1973, pp 307-314

Abstract: Plethysmographic investigations revealed that during performance of work on a wrist ergometer, changes in the blood flow through the forearm muscles proceed in two stages. With work load increasing up to 20% of the maximum possible voluntary effort, the peak blood flow during the contraction increases considerably, the reactive hyperemia following relaxation is of brief duration, and thus the total additional blood flow during recovery is very small. With work load increasing up to 50% of the maximum possible, the peak blood flow increases at a considerably reduced rate, the reactive hyperemia becomes protracted, and the additional blood flow during recovery reaches high proportions of the total. Thus, the work load of 20% of the maximum possible appears to mark the critical point below which blood flow is adequate and above which blood

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BARAZ, L. A., et al., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 2, 1973, pp 307-314

supply becomes inadequate, and the accumulating metabolites (representing a "blood debt") significantly reduce the vasotonus and thus increase the diameter of the blood vessels and the total capacity of the vascular bed in the working area.

UDC 612.833.18

USSR

KHAYUTIN, V. M., LUKOSHKOVA, Ye. V., and VYSHKOV, Yu. D., Laboratory of Regulation and Biophysics of Circulation, Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, Moscow

"Dynamics of Changes in Reflexly Conditioned Signals in Vasomotor Nerves, and a Programmed Device for Modeling Them"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 73, No 5, 1972, pp 3-6

Abstract: Research is in process on the possibility that the body's regulatory systems operate in accordance with the laws of optimum control which are now being employed in engineering systems where high-speed, optimum responses are required. In this particular work a study was made of the pattern of brain signals transmitted to vasomotor nerves activating the pressor reflex in response to tetanic stimulation of spinal afferents, and an electronic unit that simulates this pattern was developed. The A+C-afferents of the tibial nerve of anesthetized cats was stimulated tetanically, and the resulting potentials on one of the postganglionic renal nerves and the pressure in the carotid artery were recorded. Upon stimulation, a short (2-4 sec) "positive" signal greatly exceeding background bioelectric activity was recorded, followed by a "negative," inhibitory signal. Pressor reflex amplitude depended entirely

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KHAYUTIN, V. M., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 73, No 5, 1972, pp 3-6

on the intensity of the positive signal. After the negative signal, bioelectric activity gradually returned to the initial level, as did arterial pressure. Next a programmed electronic unit was designed for stimulating cardiovascular nerves in accordance with the pattern of signal strength changes with respect to time determined above. Output frequency is switched from constant background frequency to a stepwise-changing pattern of frequencies by pressing a button, at which moment the 1st timing relay engages, producing a strobing pulse of preset duration and frequency through a multivibrator generator. Its deactivation causes the next relay to trigger, and so on until the 4th, after which the circuit returns to its initial state. A circuit diagram and component description are provided.

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USSR

UDC 612.74:612.13)-06:612.816.1

MANVELYAN, L. R., and KHAYUTIN, V. M., Laboratory of Biophysics of the Cardiovascular System, Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, Moscow.

"Investigation of Working Hyperemia of a Skeletal Muscle. Parameters of Electric Stimulation of a Mixed Nerve"

Moscow, Byulleten' Eksperimentalnoy Biologiyi i Mediciny, Vol 69, No 4, April 1970, pp 21-23

Abstract: Application of rectangular pulses of 0.2 msec duration with an amplitude of 0.3 v to severed sciatic nerves of cats resulted in maximal contraction of the muscle without excitation of the vasomotor fibers, proving the possibility of selective stimulation in the mechanism governing working hyperemia. An increase in amplitude did not increase the intensity of muscle contraction nor did it affect working hyperemia. However, very large amplitudes applied to the sciatic nerve, many times those necessary for the maximal contraction of the muscle, did cause excitation of the vasomotor fibers of the sympathethic nerve.

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Acc. Nr. AP0051159 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UR0239

98924p Excitation of sympathetic postganglionic fibers by potassium chloride and acetylcholine action on the epicardium. Khayutin, V. M.; Shur, V. L.; Malyarenko, Yu. E. (Lab. Biophys. Cardiovasc. System, Inst. Norm. Pathol. Physiol., Moscow, USSR). *Fiziol. Zh. SSSR im. I. M. Sechenova* 1970, 56(1), 84–94 (Russ). Expts. on anesthetized cats showed elec. activity developing in the lower cardiac nerve during irrigation of the pericardium and epicardium with solns. of KCl and acetylcholine chloride. KCl 31.2–500 m*M* and acetylcholine solns. at 1–1000 μg/ml acting on the cardiac membrane induced centripetal impulses, esp. the slow type, in the peripheral sections of the lower cardiac nerve. This impulsation was formed by antidromic discharges of the sympathetic postganglilnic C fibers, with a rate of conduction of 0.75 m/sec. These dishcarges seemed to result directly from K^+ and acetylcholine excitation of nonmyelinated fibers. BJJR

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UDC 612.741.61

MANVELYAN, L. R., KHAYUTIN, V. M., and KHORUNZHIY, V. A., Laboratory of the Biophysics of the Cardiovascular System Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR

"Independence of the Blood Supply of Contracting Muscle From the Force It Exerts and Barriers to Shortening It"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 6, 1970, pp 6-9

Abstract: In acute experiments on anesthetized cats, the intensity of dilatation of the gastrocnemius blood vessels and the time required for their tone to be restored were found to be independent of the degree of shortening of the muscle, force exerted by it, or amount of physical work. The sole determining factor is the frequency of impulses in the motor fibers. The critical frequency of impulses at which the contracting muscle compresses its blood vessels is the same for both isotonic and auxotonic contractions (mostly 16 pulses/sec).

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1/2 022 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--INVESTIGATION OF THE WORKING HYPEREMIA OF THE SKELETAL MUSCLE. PARAMETERS OF THE ELECTRIC STIMULATION OF THE MIXED NERVE -U-

AUTHOR-(02)-MANVELYAN, L.R., KHAYUTIN, V.M.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69, NR 4, PP 21-23

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CAT, MUSCULOSKELETAL SYSTEM, NERVE, HYPEREMIA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1576 STEP NO--UR/0219/70/069/004/0021/0023

CIRC ACCESSION NO--AP0106322

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2/2 022 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0106322

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTS CONDUCTED ON CATS BROUGHT EVIDENCE THAT RECTANGULAR PULSES OF 0.2 MSEC DURATION WITH AMPLITUDE UP TO 3 V ENSURE SUPERMAXIMAL STIMULATION OF MOTOR FIBERS IN THE SEVERED SCIATIC NERVE, WITHOUT CAUSING EXCITATION OF VASOMOTOR FIBERS, THUS PROVIDING THE POSSIBILITY OF THERE SELECTIVE STIMULATION DURING INVESTIGATION OF THE MECHANISMS GOVERNING WORKING HYPEREMIA.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--SENSITIVITY OF DORSAL ROOT FIBRES TO POTASSIUM IONS AND THE HYPOTHESIS OF THE PERIPHERAL MECHANISM OF PAIN -U-

AUTHOR-(02)-KHAYUTIN, V.M., CHERNILOVSKAYA, P.YE.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69, NR 3, PP 3-6

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--POTASSIUM, PAIN, REFLEX, HEART, SMALL INTESTINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1982/0863 STEP NO--UR/0219/70/069/003/0003/0006

CIRC ACCESSION NO--AP0052297

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0052297

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POTASSIUM IONS ARE CAPABLE OF EXCITING DORSAL ROOT FIBRES GIVING RISE TO NOCICEPTIVE REFLEXES. THE THRESHOLD CONCENTRATION OF THIS EFFECT IS 20 MM-L, WHICH IS LOWER THAN THE THRESHOLD NOCICEPTIVE CONCENTRATION FOR THE REFLEXOGENIC ZONES OF THE EPICARDIUM AND SMALL INTESTINE. THE DATA OBTAINED ARE CONSIDERED AS CONFIRMING THE CONCEPTION THAT NOCICEPTIVE REACTIONS ARE THE RESULT OF EXCITATION OF THE UNMYELINATED FIBRES THEMSELVES, AND NOT OF SPECIAL PAIN RECEPTORS.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--THE RELATION OF BLOOD FLOW IN AUXOTONICALLY CONTRACTING GASTROCNEMIUS MUSCLE TO THE FREQUENCY OF STIMULATION -U-
AUTHOR-(03)-MANVELYAN, L.R., KHAYUTIN, V.M., KHORUNZHIY, V.A.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69, NR 5, PP 14-18
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MUSCLE PHYSIOLOGY, MUSCLE STIMULATION, BLOOD CIRCULATION, ELECTROPHYSIOLOGY, HYPEREMIA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0367 STEP NO--UR/0219/70/069/005/0014/0018

CIRC ACCESSION NO--AP0121055
UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0121055

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BLOOD FLOW IN THE GASTROCNEMIUS MUSCLE OF THE CAT DURING SUPRAMAXIMAL STIMULATION OF THE MUSCLE EFFERENT FIBRES ANDER AUXOTONIC REGIME OF CONTRACTION WAS STUDIED IN RELATION TO THE FREQUENCY OF STIMULATION (0,125-256 PULSES PER SEC.). THE CRITICAL FREQUENCY WAS 16 PULSES PER SEC., AT WHICH WAS ATTAINED THE MAXIMAL POSTCONTRACTION PEAK BLOOD FLOW, A COMPRESSION OF THE BLOOD VESSELS DURING MUSCLE CONTRACTION AND AT WHICH THE DURATION OF POST CONTRACTION HYPERAEMIA INCREASED BY LEAPS. RESULTS ARE COMPARED WITH THE DATA ON THE FREQUENCY OF MOTENEURON PULSES IN MAN WHICH ARE TYPICAL FOR THEIR INVOLVEMENT AND FOR THE CHANGE FROM WEAK POSE EFFORT TO STRONG CONTRACTIONS. FACILITY: INSTITUTE OF NORMAL AND PATHOLOGICAL PHYSIOLOGY, USSR ACADEMY OF MEDICAL SCIENCES, MOSCOW.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--INDEPENDENCE OF THE BLOOD SUPPLY OF THE CONTRACTING MUSCLE FROM THE EXERTED FORCE AND HINDRANCE OF ITS SHORTENING -U-
AUTHOR-(03)-MANVELYAN, L.R., KHAYUTIN, V.M., KHORUNZHIY, V.A.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 49, NR 6, PP 6-9
DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MUSCLE PHYSIOLOGY, EXERCISE, ELECTROPHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0711 STEP NO--UR/0219/70/049/006/0006/0009

CIRC ACCESSION NO--AP0131310
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131310

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ACUTE EXPERIMENTS ON CATS IT WAS ESTABLISHED THAT THE INTENSITY OF VASODILATATION IN GASTROCNEMIC MUSCLE AND THE DURATION OF ITS TONE RESTORATION AFTER CONTRACTION DOES NOT DEPEND ON THE DEGREE OF SHORTENING OF THE MUSCLE DEVELOPING DURING ITS CONTRACTION AND THE VALUE OF PHYSICAL WORK, BUT IS DETERMINED ONLY BY THE FREQUENCY OF IMPULSES IN THE MOTOR FIBERS. THE CRITICAL FREQUENCY OF IMPULSES, DURING WHICH THE CONTRACTING MUSCLE COMPRESSES ITS VESSELS IS SIMILAR FOR ISOTONIC AND AUXOTONIC CONTRACTIONS, AND IN THE MAJORITY OF EXPERIMENTS COMPRISES APPROXIMATELY 16 IMP PER SEC.

FACILITY: INSTITUTE OF NORMAL AND PATHOLOGICAL PHYSIOLOGY OF THE ACADEMY OF MEDICAL SCIENCES OF THE USSR, MOSCOW.

UNCLASSIFIED

USSR

UDC: 612.014.421.8:621.317.727.1

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"Using the Potentialoscope to Detect Weak Bioelectrical Signals by the Coherent Storage Method"

Moscow, Byulleten' eksperimental'noy biologii i meditsiny, No 8, 1972, pp 115-117

Translation:

A device used for detecting bioelectrical signals in noise of biological and instrumental origin, operating on the principle of coherent storage, is described. A cathode-ray tube with charge storage (the potentialoscope LN-8) is used as the memory device.

At the present time, specialized digital computers (SDC) such as the CAT-400, ART-1000, ATAC-20, ANOPS-1, and "Neuron" are used in the analysis of bioelectrical signals. One of the problems these machines solve best is the detection of weak bioelectrical signals and the averaging of the evoked responses by the